Project Health & Safety Plan [HASP]

Project/Site Name: Upper Animas **Site Address:** Silverton, CO

Project Number: 03072.2.04.04B.4B.085M.00.F023 **Project Manager:** Steven Auer **Phone:** 303-312-7717

TechLaw, Inc.

HEALTH and SAFETY PLAN

Upper Animas/Residential Soils
Silverton, CO Agency: EPA
03072.2.04.04B.4B.085M.00.F023
3/13/2015

	Name	Title	Date
Project Safety Plan Written By	Francisco Lapostol	Field Scientist	3/13/2015
Project Manager Approval	Steven Auer	Project Manager	
H&S Review Concurrence*	Holli Merchant, CIH, CSP	Health and Safety Director	05/06/15

**Approval must be given by the H&S Director, or any TechLaw Certified Industrial Hygienist (CIH), Certified Safety Professional (CSP), or their chosen designee.*

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1. Scope of Work	
Dates of the work:	5/11/2015 to 5/22/2015, and 9/28/2015 to 10/9/2015.
Scope of work: (Type of activity, expected tasks, methods/procedures, order of events, etc.)	Sampling events will be conducted in 2015 to evaluate the extent of metals contamination in the Cement Creek drainage and metals contribution to the Animas River. Additionally, a large scale residential soil sampling event will occur during the deployments in 2015. The following data will be collected during the events: • Real-time field water quality parameters – pH, conductivity, dissolved oxygen, temperature, and Global Positioning System (GPS) locations (if needed); • Stream flows – using Flow Tracker flow meters, flumes (where necessary), and stream flow measurement instrumentation that is already in place; • Surface water including streams and adit discharges – dissolved metals, total recoverable metals, dissolved organic carbon, alkalinity and anions; • Bulk surface water - rainbow trout 96-hour acute toxicity test • Bulk sediment – *Hyallela azteca* 10-day chronic exposure toxicity test • Sediment- total recoverable metals; • XRF – soil screening • Soil sample collection
Agency Involved (regulations): **Site Regulatory Status:** (i.e. 1910, 1926 or State) **Governing Agency:** (i.e. EPA, DOE, State, USACE, NPL Site, NRC, Air Force, OSHA, etc.)	1910 EPA, BLM, USFS, CDPHE-DRMS (Colorado Division of Public Health and Environment – Division of Reclamation, Mining and Safety), and ARSG (Animas River Stakeholders Group)

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Identify site contaminants: (If present, how was it determined that exposures will be below OSHA PEL or NIOSH RELs?) Please provide exposure limits if available. If none are known, site sources used to arrive at this conclusion. Please provide OSHA or MSDS information for all contaminants	Heavy metals in mine tailings and effluent such as arsenic, cadmium, copper, iron, manganese, and zinc. Nitric and phosphoric acid for sample preservation. See attached Safety Data Sheets (SDS) for tolerance limits.

Site description: (Physical details, i.e., acreage, topography, vegetation, type of facility, usage history, distance from pop. center, access routes, etc.)	The discovery of gold and silver brought miners to the Silverton area and Animas Mining District in the early 1870's. The discovery of silver in the base-metal ores was the major factor in establishing Silverton as a permanent settlement. Between 1870 and 1890, the richer ore deposits were discovered and mined to the extent possible. Not until 1890 was any serious attempt made to mine and concentrate the larger low-grade ore bodies in the area. By 1900, there were 12 concentration mills in the valley sending products to the Kendrick and Gelder Smelter near the mouth of Cement Creek. Mining and milling slowed down circa 1905, and mines were consolidated into fewer and larger operations with the facilities for milling large volumes of ore. After 1907, mining and milling continued throughout the basin whenever prices were relatively favorable. Gladstone, located about eight miles upstream of Silverton on Cement Creek, is the site of an historic mining town was developed in the 1880s commensurate with the onset of mining in the surrounding area. The town was the central location and railroad terminus for the milling and shipping of mine ores from the surrounding three-square-mile valley. The town declined in the 1920 s and no remnants of the town remain. By the 1970's only one year round producing mine (Sunnyside Mine) remained in the county. This mine ceased production in 1991, and has since undergone extensive reclamation efforts. The Gold King Mine's permit with DRMS is currently in inactive status; however, landowners hope to rehabilitate the mine. Both the Sunnyside and Gold King properties were partially accessed through the American Tunnel that has its portal in Gladstone. Previously the American Tunnel drained as much as 1,600 gallons per minute (gpm) of water from the mines. A lime feed and settling pond type treatment facility was constructed in Gladstone in 1979 by Standard Metals Corporation. Water discharging from the American Tunnel was treated as required by the water discharge permit. The facility operations and mine ownership was later transferred to the Sunnyside Gold Corporation (SGC). Under jurisdiction of a court consent decree to terminate their discharge permit, SGC installed several bulkheads within the Sunnyside Mine that greatly reduced the amount of discharge from the American Tunnel. Seventy to one hundred gpm continue to discharge presumably from near surface groundwater. All terms of the consent decree were met by SGC in 2002. In January 2003 the treatment facility, operations, and permit were transferred to Gold King Mines Corp. The settling ponds were deeded to San Juan Corp. by SGC prior to the lease between Gold King Mines Corp. and San Juan Corp. The treatment facility continued to treat the remaining American Tunnel discharge and the Gold King discharge until September 2004. San Juan Corp. required SGC to reclaim the four settling ponds (completed in 2005) following termination of the San Juan Corp. and SGC lease. Gold King Mines Corp. was subsequently evicted and the balance of Gold King Mines Corp. land was acquired by San Juan Corp. as the lien holder. The American Tunnel portal reclamation and removal of some out buildings was completed in 2006. The BLM manages the land associated with the American Tunnel portal and some land beyond the portal; however, San Juan Corp. owns the majority of the land surrounding the portal.

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2. Task Hazard Analysis (What are the major hazards associated with each definable task within the scope of work?) **pg 1 of 2** (as needed)

If hazards include work over water, extreme temperatures, remote locations, confined space, respirator use or any other high risk/logistically challenging elements use a HASP template for planning. Please contact TechLaw Health & Safety for Assistance and Guidance for Templates, Forms and SOPS (that are posted on SharePoi nt).

Task: Driving to Site	**Hazard(s):** Weather conditions, mountain driving, biological.	**Mitigation/Hazard Controls:** Inspect vehicle prior to travel, drive while well rested; take turns driving; check road conditions prior to leaving; plan out alternate routes if they become necessary; drive defensively.
		Required PPE:
Task: Real time water quality parameters	**Hazard(s):** Exposure to calibration standards; slips trips, falls, weather, biological.	**Mitigation/Hazard Controls:** Wear PPE during calibration of instrument; wear layered clothing and proper footwear; wear sunscreen.
		Required PPE: Disposable nitrile gloves and safety glasses during calibration. Waders if entering the water body or hiking boots during data collection.
Task: Flow measurements	**Hazard(s):** Over water work, biological, slips trips and falls, weather	**Mitigation/Hazard Controls:** Wear proper PPE; the buddy system
		Required PPE: Life vest; waders, layered clothing
Task: Surface water sampling	**Hazard(s):** Exposure to contaminated samples, biological, weather, slips trips and falls, exposure to preservatives	**Mitigation/Hazard Controls:** Wear proper PPE, layered clothing; buddy system
		Required PPE: Life jacket during high flow conditions, waders, disposable nitrile gloves and safety glasses during sample preservation.

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2. Task Hazard Analysis (What are the major hazards associated with each definable task within the scope of work?) pg 2 of 2 (as needed)
If hazards include work over water, extreme temperatures, remote locations, confined space, respirator use or any other high risk/logistically challenging elements use a HASP template for planning. Please contact TechLaw Health & Safety for Assistance and Guidance for Templates, Forms and SOPS (that are posted on SharePoi nt).

Task: Riding in railcar to collect samples in remote locations	**Hazard(s):** Weather conditions, biological, noise	**Mitigation/Hazard Controls:** Use the buddy system at all times, personnel should not let their "buddy" out of sight at any time. Keep an eye out for macro-fauna. Wear hearing protection while riding in car.
		Required PPE:
Task: Soil sampling/XRF screening	**Hazard(s):** Toxic substance ingestion, irate homeowner, radiation exposure	**Mitigation/Hazard Controls:** Before sampling, contact homeowner and confirm access. Provide TOCOR's contact information as necessary. Wear proper PPE, wash hands before eating food with bare hands, make sure properties are properly identified before sampling, Understand proper use of XRF. Only traineded operators should use XRF. Use caution collecting samples near adits: snow may obscure entrances and pose slip, trip, and fall hazards
		Required PPE: Nitrile gloves
Task: Excavating trenches in selected areas	**Hazard(s):** overhead hazard, large equipment hazard	**Mitigation/Hazard Controls: :** all except operator remain outside the range of the bucket while in motion, grounding the bucket when samples are collected, use spotters as necessary
		Required PPE: hard hats and steeled toe boots. Traffic vests required when working around heavy equipment.
Task:	**Hazard(s):**	**Mitigation/Hazard Controls**
		Required PPE:

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3. Emergency Contacts		
Fire	911	Non-emergency: 970-387-5523
Police	911	Non-emergency: 970-387-5531
Medical	911	Non-emergency: 970-247-4311
Client Contact:	Office #: Dan Wall	Cell #: 720-347-5520
EMERGENCY Nearest **Hospital**	Name: Mercy Medical Center	Phone #: 970-247-4311
Address & Directions to Nearest **Hospital** (Map Attached? ☒ YES ☐ NO)	Address: 1010 Three Springs Blvd. Durango, Co 81301	Directions: See Attached Map
NON-EMERGENCY Nearest **Occupational Health Clinic**	Name: Mercy Medical Center	Phone #: 970-247-4311
Address & Directions to Nearest **Occ. Health Clinic** (Map Attached? ☒ YES ☐ NO)	Address: 1010 Three Springs Blvd. Durango, Co. 81301	Directions: See Attached Map

Responsible Personnel			
Project Manager	Steven Auer	Office #: 303-312-7717	Cell #: 303-808-0282
Site Safety Officer	Francisco Lapostol	Office #: 303-312-7716	Cell #: 303-246-9526
TechLaw Health and Safety Director	Holli Merchant, CIH, CSP	Office #: 303-986-1067	Cell #: 303-668-0589
TechLaw Health and Safety Officer		Home #:	Cell # :
TechLaw Medical Consultant	Mark Strauss, M.D.	Office #: 850-393-3613	PM #: 800-943-2944

4. List Applicable TechLaw SOPs		
Completed SOP's that were commissioned by the ESAT Region 8 contract will be applied during field sampling activities.		

5. TechLaw Field Team Members and Required Training for this Project		
Team Member Name(s)	**Training/Qualifications**	**Signature of Team Member**
Steven Auer	OSHA 40-hour HAZWOPER, Fit Testing, medical monitoring, first aid CPR training.	
Leslie Christner	OSHA 40-hour HAZWOPER, Fit Testing, medical monitoring, first aid CPR training.	
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6. Site Specific Equipment: (equipment not conventionally used for field work, or is unfamiliar to the assigned team members)	
Item: Vehicle	**Hazard(s):** Road conditions, weather, other drivers, wildlife
	Mitigation/Hazard Controls: Check road reports, drive in shifts, find alternate route before deploying, drive defensively.
Item: Flow Tracker	**Hazard(s):** Over water work, heat/cold stress, biological
	Mitigation/Hazard Controls: Wear proper PPE (life jacket and waders), dress according to weather, buddy system
Item: In-situ water quality meter	**Hazard(s):** Exposure to calibration standards, heat cold stress in the field, biological.
	Mitigation/Hazard Controls: Wear proper PPE (gloves and safety glasses) during calibration, dress according to weather, buddy system.

Health & Safety Plan Checklist. **Checklist is not part of HASP – Do not take off-site or bring to Project Site. Initially the checklist will be posted with the HASP on SharePoint.**

Include Site Map, Directions to Site and Map of planned route to site.

Emergency Response Information – Directions to Site, Directions to Hospital

Contaminants of Concern – Attach MSDSs of appropriate Contaminants

July 2011

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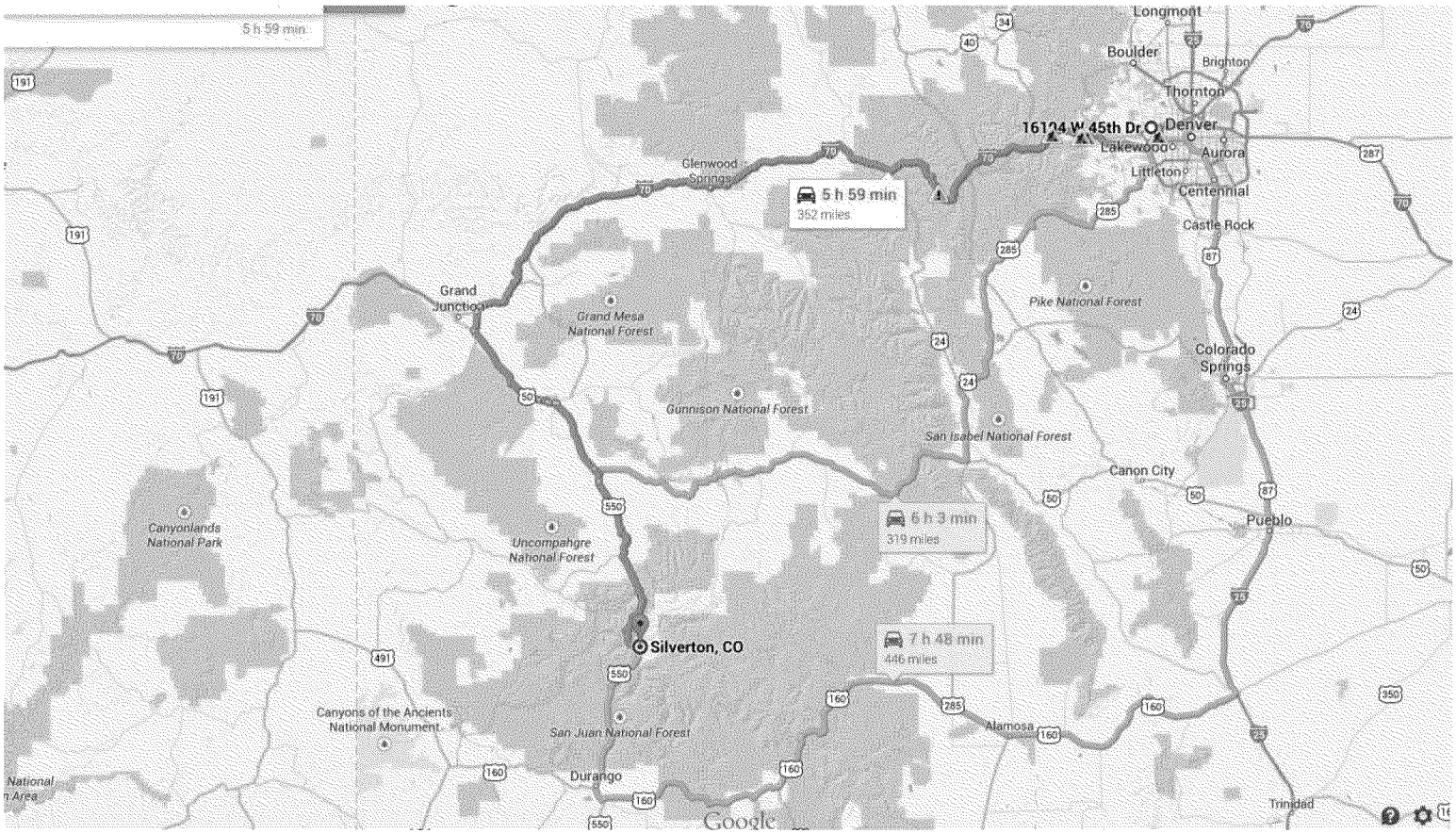
Golden Lab to Silverton Map



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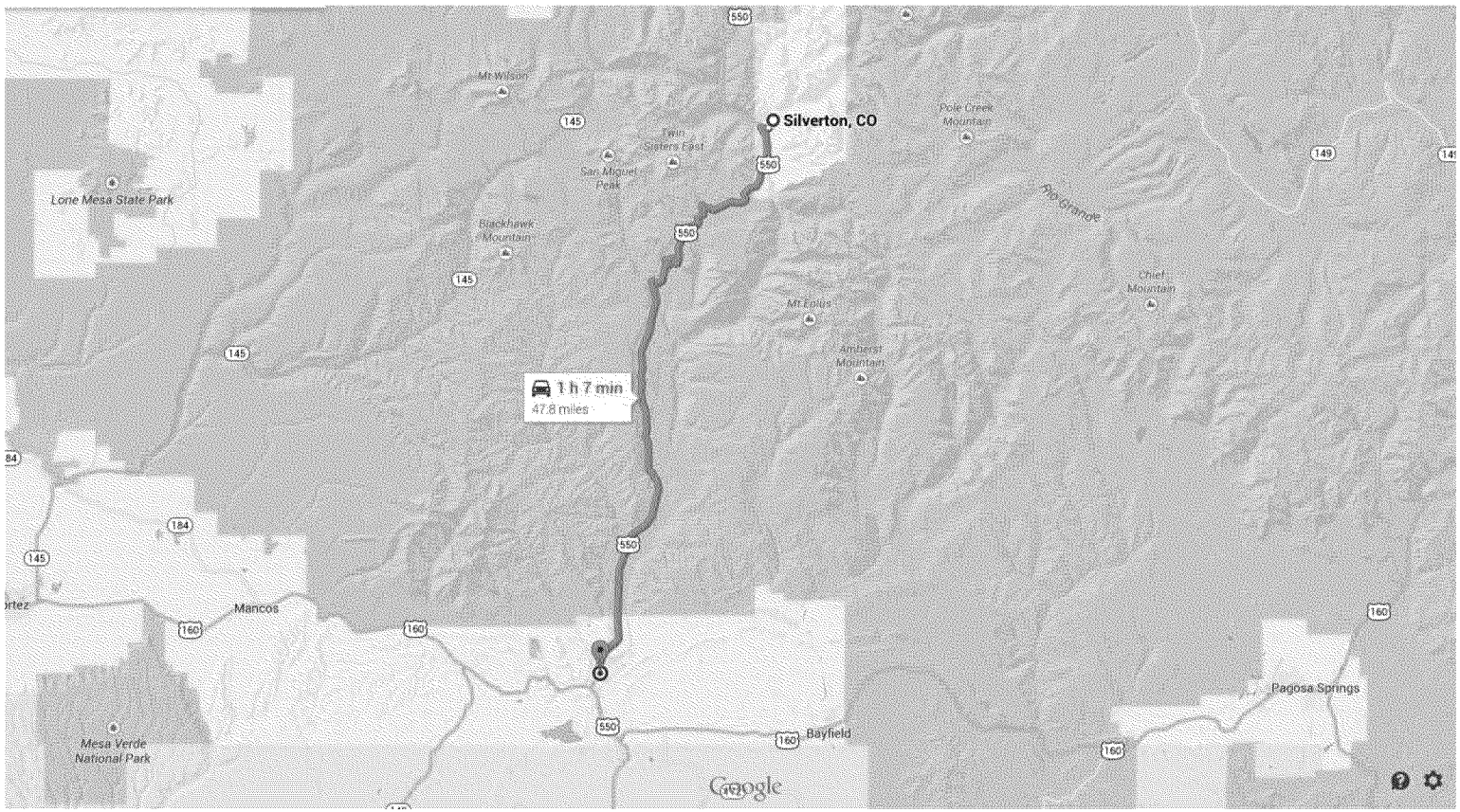
Silverton to Durango Hospital Map



Upper Animas Site Map